The Busy Teacher's Simple Guide to Climate Change

1. What is the problem?

The world is getting warmer

The average temperature of the Earth's surface has increased by about 0.85°C in the last 100 years. 14 of the 15 warmest years were recorded in the 21st Century, with 2015 setting the record for the warmest year on record.

2. Why is this happening?

Greenhouse gases, mainly carbon dioxide

Gases released from industry and agriculture (known as emissions) are adding to the natural greenhouse effect, the way the Earth's atmosphere traps some of the energy from the Sun.

Human activities such as burning fossil fuels like coal, oil and natural gas are increasing the amount of carbon dioxide (CO_2) in the atmosphere, the main greenhouse gas responsible for global warming.

Living trees absorb CO_2 and store it and give out oxygen (O_2). However, when forests are cut down the trees no longer absorb any CO_2, even worse, if they are burnt down they release the stored CO_2 into the atmosphere. Rainforests are very important in the fight against climate change, but they are being cut down for their wood, for mining, to farm cows (who emit methane, another greenhouse gas), and to plant palm oil. Around 20% of global greenhouse gas emissions come from deforestation.

The concentration of CO_2 in the atmosphere is now higher than at any time in the last 800,000 years and reached a record high in May 2015.

3. What are the effects?

Higher temperatures, extreme weather events and higher sea levels

These are all linked to a warming climate and could have a drastic effect on the world's regions. The rate of sea-level rise has accelerated in recent decades, placing a number of islands such as Tuvalu and the Maldives, and low-lying countries like Bangladesh at risk. The retreat of polar ice sheets is an important contributor to this rise.

4. What does the future hold?

Higher temperatures and more extreme weather

The scale of potential impacts is uncertain. The changes could bring shortages in freshwater, major changes in food production conditions and a rise in the number of casualties from floods, storms, heat waves and droughts.

This is because climate change is expected to increase the frequency of extreme weather events - however linking any single event to global warming is complicated.

This affects people all over the world, but far more in poorer countries, where people have fewer resources to respond to a crisis.

Adapted from '6 graphics that explain climate change' – click here for the graphics
www.bbc.co.uk/news/resources/idt-5aceb360-8bc3-4741-99f0-2e4f76ca02bb

Find out what countries agreed to do about this at the COP21 Climate Change Summit
www.bbc.co.uk/news/science-environment-35084374